

# European Paediatric Cardiac Code Short List cross mapped to STS/EACTS Short List with ICD-9 & ICD-10 crossmapping

[boxed items in Appendix are where two or more EPCC codes map to an STS/EACTS 'combination' term]

Collective term status	EPCC code	ICD-9	ICD-9 additional	ICD-10	ICD-10 additional	STS/EACTS equivalent
<b>Diagnostic congenital and generic cardiac codes</b>						
	Normal heart,	01.01.00	nc		nc	Normal heart
c1	Normal atrial arrangement (situs), AV & VA connections,	01.03.10	nc		nc	
	Usual atrial arrangement (atrial situs solitus),	01.03.00	nc		nc	
	Concordant VA connections,	01.05.00	nc		nc	
	Innocent murmur,	10.12.01	785.2		R01.0	
<b>Abnormalities of position and connection of heart</b>						
c1	Position-orientation of heart abnormal,	02.01.09	746.8		Q24.8	Cardiac, Other
	Dextrocardia: heart predominantly in R hemithorax,	02.01.02	746.8		Q24.0	Cardiac, Other
c1	Position or morphology of thoraco-abdominal organs abnormal,	03.01.09	759.9		Q89.9	Thoracic and/or mediastinal, Other
c1	Abnormal atrial arrangement,	01.03.06	746.9		Q20.9	Cardiac, Other
	Total mirror imagery (atrial situs inversus),	03.01.03	759.3		Q89.3	Thoracic and/or mediastinal, Other
	Right isomerism ('asplenia'),	03.01.04	746.8		Q20.6	Atrial isomerism, Right
	Left isomerism ('polysplenia'),	03.01.05	746.8		Q20.6	Atrial isomerism, Left
c1	AV and/or VA connections abnormal,	01.03.09	746.9		Q20.9	Cardiac, Other
c2	Double inlet ventricle,	01.01.14	745.3		Q20.4	Single ventricle
	Double inlet RV,	01.04.03	745.3		Q20.4	Single ventricle, DIRV
	Double inlet LV,	01.04.04	745.3		Q20.4	Single ventricle, DILV
	Tricuspid atresia,	06.01.01	746.1		Q22.4	Single ventricle, Tricuspid atresia
	Mitral atresia,	06.02.01	746.8		Q23.2	Single ventricle, Mitral atresia
	Solitary ventricle of indeterminate morphology,	02.03.05	745.3		Q20.4	Single ventricle, Other
c2	Discordant VA connections (TGA),	01.05.01	745.1		Q20.3	TGA
	Complete transposition of great arteries (IVS),	01.01.02	745.1		Q20.3	TGA, IVS
	Congenitally corrected transposition of great arteries,	01.01.03	745.1		Q20.5	Congenitally corrected TGA
c2	Double outlet RV,	01.01.04	746.8		Q20.1	DORV
	Double outlet RV - Fallot type,	01.01.17	746.8		Q20.1	DORV, TOF type
	Double outlet RV - transposition type,	01.01.18	746.8		Q20.1	DORV, TGA type
	Double outlet RV - with non-committed VSD,	01.01.19	746.8		Q20.1	DORV, Remote VSD (Uncommitted VSD)
	Double outlet LV,	01.05.03	746.8		Q20.2	DOLV
c2	Common arterial trunk,	09.01.01	745.0		Q20.0	Truncus arteriosus
<b>Tetralogy of Fallot and variants</b>						
	Tetralogy of Fallot,	01.01.01	745.2		Q21.3	TOF
	Pulmonary atresia + VSD (including Fallot type),	01.01.06	745.2		Q21.3	Pulmonary atresia, VSD (including TOF, PA)
	Pulmonary atresia + VSD + MAPCA(s),	01.01.25	745.2	747.9	Q21.3	Pulmonary atresia - VSD - MAPCA (pseudotruncus)
	Absent pulmonary valve syndrome - Fallot-type,	09.05.25	746.8	746.0	Q24.8	TOF, Absent Pulmonary Valve
	Solitary arterial trunk (absent intrapericardial PAs),	09.07.26	745.2		Q25.7	Cardiac, Other
c1	Major systemic-to-pulmonary collateral artery (MAPCA),	09.08.01	747.9		Q27.8	MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)
<b>Abnormalities of great veins</b>						
c1	Superior caval vein (SVC) abnormality,	04.01.00	747.4		Q26.9	Systemic venous anomaly
	Left SVC persisting to coronary sinus,	04.01.01	747.4		Q26.1	Systemic venous anomaly
c1	Inferior caval vein (IVC) abnormality,	04.03.00	747.4		Q26.9	Systemic venous anomaly
	Azygous continuation of IVC,	04.03.10	747.4		Q26.8	Systemic venous anomaly

c1	Hepatic vein abnormality,	04.02.00	747.4	Q26.8	Systemic venous anomaly
c1	Systemic vein abnormality - congenital,	04.05.00	747.4	Q26.9	Systemic venous anomaly
c1	Pulmonary vein abnormality,	04.08.00	747.4	Q26.9	Cardiac, Other
c2	Pulmonary vein stenosis,	04.08.91	747.4	Q26.8	Pulmonary vein stenosis
c2	Totally anomalous pulmonary venous connection,	04.08.05	747.4	Q26.2	Total anomalous pulmonary venous connection (TAPVC)
	Totally anomalous pulmonary venous connection - supracardiac,	04.06.00	747.4	Q26.2	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)
	Totally anomalous pulmonary venous connection - intracardiac,	04.08.10	747.4	Q26.2	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)
	Totally anomalous pulmonary venous connection - infracardiac,	04.08.20	747.4	Q26.2	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)
	Totally anomalous pulmonary venous connection - mixed,	04.08.30	747.4	Q26.2	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)
c2	Partially anomalous pulmonary venous connection(s),	04.07.01	747.4	Q26.3	Partial anomalous pulmonary venous connection (PAPVC)
	Partially anomalous pulmonary venous connections: Scimitar syndrome,	01.01.16	747.4	Q26.8	Partial anomalous pulmonary venous connection (PAPVC), Scimitar
c1	Coronary sinus abnormality,	04.04.00	746.8	Q24.5	Cardiac, Other
<b>Abnormalities of atriums and atrial septum</b>					
c1	RA abnormality,	05.01.00	746.9	Q20.8	Cardiac, Other
c1	LA abnormality,	05.02.00	746.9	Q20.8	Cardiac, Other
	Cor triatriatum (divided left atrium),	05.02.01	746.8	Q24.2	Cor triatriatum
	Intact atrial septum,	05.03.10	nc	nc	
c1	Atrial septum abnormality,	05.03.00	745.5	Q21.9	Cardiac, Other
	Patent foramen ovale (PFO),	05.03.01	745.5	Q21.1	PFO
c2	ASD,	05.04.01	745.5	Q21.1	ASD
c3	ASD within oval fossa (secundum),	05.04.02	745.5	Q21.1	ASD, Secundum
	Spontaneous closure of ASD within oval fossa (secundum),	05.04.03	nc	nc	
c3	Sinus venosus ASD,	05.05.00	745.5	Q21.1	ASD, sinus venosum
	Common atrium (virtual absence of atrial septum),	05.06.01	745.6	Q21.2	ASD, Common atrium (single atrium)
	Interatrial communication (ASD) through coronary sinus orifice,	05.05.03	745.5	Q21.1	ASD, Coronary sinus
<b>Abnormalities of AV valves and AV septal defect</b>					
c1	Tricuspid valvar abnormality,	06.01.00	746.9	Q22.9	Tricuspid valve, Other
c2	Tricuspid regurgitation,	06.01.91	746.8	Q22.8	Tricuspid regurgitation, non-Ebstein's related
	Tricuspid regurgitation - congenital,	06.01.25	746.8	Q22.8	Tricuspid regurgitation, non-Ebstein's related
	Tricuspid valvar dysplasia (mucoid thickening),	06.01.03	746.9	Q22.8	Tricuspid valve, Other
	Straddling tricuspid valve,	06.01.09	746.9	Q22.8	Tricuspid valve, Other
	Ebstein's malformation of tricuspid valve,	06.01.34	746.2	Q22.5	Ebstein's anomaly
c1	Tricuspid stenosis,	06.01.92	746.1	Q22.4	Tricuspid stenosis
c1	Mitral stenosis,	06.02.92	746.5	Q23.2	Mitral stenosis
c1	Mitral valvar abnormality,	06.02.00	746.9	Q23.9	Mitral valve, Other
c2	Mitral regurgitation,	06.02.91	746.6	Q23.3	Mitral regurgitation
	Mitral regurgitation - congenital,	06.02.25	746.6	Q23.3	Mitral regurgitation
	Straddling mitral valve,	06.02.09	746.9	Q23.8	Mitral valve, Other
	Supravalvar mitral ring,	05.02.02	746.8	Q20.8	Mitral stenosis, Supravalvar mitral ring
	Mitral valvar prolapse,	06.02.35	746.9	I34.1	Mitral valve, Other
	True cleft of mitral valve,	06.02.36	746.9	Q23.8	Mitral valve, Other
c1	Mitral valve stenosis,	06.02.93	746.5	Q23.2	Mitral stenosis, Valvar
	Mitral valvar stenosis - congenital,	06.02.07	746.5	Q23.2	Mitral stenosis, Valvar
c1	Mitral subvalvar apparatus abnormality,	06.02.12	746.9	Q23.8	Mitral stenosis, subvalvar
	Mitral subvalvar stenosis,	06.02.13	746.8	Q23.8	Mitral stenosis, subvalvar
	Parachute malformation of mitral valve,	06.02.56	746.9	Q23.8	Mitral stenosis, Subvalvar, Parachute
c1	Atrioventricular septal defect,	06.06.00	745.6	Q21.2	AVC (AVSD)
	AVSD: isolated atrial component (primum ASD),	06.06.01	745.6	Q21.2	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, Primum)
	AVSD: isolated ventricular component,	06.06.08	745.6	Q21.2	AVC (AVSD)
	AVSD: atrial & ventricular components (complete),	06.06.09	745.6	Q21.2	AVC (AVSD), Complete (CAVSD)
	AVSD: atrial & ventricular components + separate AV valves ('intermediate'),	06.06.10	745.6	Q21.2	AVC (AVSD), Intermediate (transitional)
	AVSD with ventricular imbalance,	06.07.26	745.6	Q21.2	Single ventricle, Unbalanced AV Canal
c1	AVSD AV valvar abnormality,	06.05.01	746.9	Q24.8	Cardiac, Other



	Central pulmonary arterial stenosis - proximal to hilar bifurcation,	09.10.07	747.3	Q25.6		Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)
	Peripheral pulmonary arterial stenoses - at/beyond hilar bifurcation,	09.10.06	747.3	Q25.6		Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)
c2	Pulmonary arterial hypoplasia,	09.10.11	747.3	Q25.7		Pulmonary artery stenosis (Hypoplasia), Main (Trunk)
	Discontinuous (non-confluent) pulmonary arteries,	09.10.10	747.3	Q25.7		Pulmonary artery, Discontinuous
c2	Pulmonary arterial aneurysm,	09.10.44	747.3	Q25.7		Aneurysm, Pulmonary artery
c1	Aortic stenosis,	09.15.92	746.3	Q23.0		Aortic stenosis,
c2	Subaortic stenosis,	07.09.00	746.8	Q24.4		Aortic stenosis, Subvalvar
	Subaortic stenosis due to fibromuscular shelf,	07.09.03	746.8	Q24.4		Aortic stenosis, Subvalvar
c1	Aortic valvar abnormality,	09.15.00	746.9	Q23.9		Aortic valve, Other
c2	Aortic valvar stenosis,	09.15.13	746.3	Q23.0		Aortic stenosis, Valvar
	Aortic valvar stenosis - congenital,	09.15.01	746.3	Q23.0		Aortic stenosis, Valvar
	Eccentric opening of tricuspid aortic valve,	09.15.12	746.9	Q23.8		Aortic valve, Other
c2	Aortic regurgitation,	09.15.91	746.4	Q23.1		Aortic insufficiency
	Aortic regurgitation - congenital,	09.15.07	746.4	Q23.1		Aortic insufficiency
	Bicuspid aortic valve,	09.15.22	746.4	Q23.1		Aortic valve, Other
c2	Aortic valvar atresia,	09.15.03	746.7	Q23.0		Aortic valve atresia
c2	Aortic valvar prolapse,	09.15.30	746.9	Q23.8		Aortic valve, Other
c1	Ascending aorta abnormality,	09.16.10	747.2	Q25.3		Cardiac, Other
	Ascending aorta hypoplasia,	09.16.02	747.2	Q25.4		Cardiac, Other
c2	Supravalvar aortic stenosis,	09.16.00	747.2	Q25.3		Aortic stenosis, Supravalvar
c2	Ascending aorta dilation,	09.16.09	747.2	Q25.4		Cardiac, Other
	Ascending aorta dilation associated with Marfan syndrome,	09.16.05	441.6	Q87.4†	I79.0*	Cardiac, Other
c1	Aortic sinus of Valsalva aneurysm,	09.18.01	747.2	Q25.4		Sinus of Valsalva aneurysm
c1	Aorto-LV tunnel,	09.17.02	747.2	Q25.4		LV to aorta tunnel
c1	Aortic arch abnormality,	09.28.00	747.2	Q25.4		Cardiac, Other
	Right aortic arch,	09.28.15	747.2	Q25.4		Cardiac, Other
c2	Aortic coarctation,	09.29.01	747.1	Q25.1		Coarctation of aorta
c2	Aortic arch hypoplasia (tubular),	09.29.11	747.2	Q25.4		Aortic arch hypoplasia
c2	Interrupted aortic arch,	09.29.31	747.1	Q25.4		Interrupted aortic arch
c2	Aortic arch branch abnormality,	09.30.00	747.6	Q27.8		Cardiac, Other
	Aberrant origin R subclavian artery,	09.30.02	747.6	Q27.8		Cardiac, Other
c1	Vascular ring,	09.31.00	747.2	Q25.4		Vascular ring
c2	Double aortic arch,	09.28.09	747.2	Q25.4		Vascular ring
	Pulmonary arterial sling,	09.09.06	747.3	Q25.7		Pulmonary artery sling
	Descending aorta dilation,	09.28.16	747.2	Q25.4		Cardiac, Other
	Descending/ abdominal aorta hypoplasia (middle aortic syndrome),	09.29.16	747.2	Q25.4		Cardiac, Other

### Abnormalities of coronary arteries, arterial duct and pericardium; AV fistulae

c1	Coronary arterial abnormality,	09.46.00	746.8	Q24.5	Coronary artery anomaly
c2	Anomalous origin of coronary artery from pulmonary artery,	09.41.01	746.8	Q24.5	Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
c2	Coronary fistula,	09.45.01	746.8	Q24.5	Coronary artery anomaly, Fistula
c2	Coronary artery: anomalous aortic origin / course,	09.42.00	746.8	Q24.5	Coronary artery anomaly, Anomalous aortic origin
	Coronary arterial aneurysm(s),	09.46.01	746.8	Q24.5	Coronary artery anomaly, Aneurysm
c1	Arterial duct (ductus arteriosus) abnormality,	09.27.00	747.8	Q25.8	Cardiac, Other
c2	Patent arterial duct (PDA),	09.27.21	747.0	Q25.0	Patent ductus arteriosus
c1	Arteriovenous fistula,	09.19.01	747.6	Q27.3	
	Pulmonary arteriovenous fistula,	09.19.05	747.3	Q25.7	Pulmonary AV fistula
c1	Distal systemic arterial abnormality,	09.20.20	747.9	Q27.8	Peripheral vasculature, Other
c1	Pericardial abnormality,	10.01.00	746.8	Q24.8	Pericardial disease, Other
	Cardiac abnormality (DESCRIBE),	01.01.39	746.8	Q24.8	Cardiac, Other

### Diagnostic hereditary, fetal, neonatal and non-cardiac codes

	Multiple congenital malformations,	14.06.01	759.7	Q89.7	
	Family history of congenital heart lesion,	10.23.01	V19.5	Z82.7	
	Family history of disorder with cardiac involvement,	10.23.03	V19.5	Z82.7	
c1	Maternal teratogen associated with congenital heart disease,	14.05.01	760.7	Q86.8	
	Maternal SLE,	10.23.02	655.4	P00.8	

### Neonatal and fetal disorders or abnormalities

c1	Neonatal disorder,	10.15.00	779.9	P96.9	
	Infant of diabetic mother,	10.22.03	775.0	P70.1	
	Heart muscle disease in infant of diabetic mother,	10.07.71	775.0†	P70.1†	I43.8* Cardiac, Other
	Premature birth,	10.22.02	765.1	P07.3	
	Meconium aspiration,	10.15.12	770.1	P24.0	Meconium aspiration
	Necrotising enterocolitis,	10.15.05	777.5	P77	
	Transient myocardial ischaemia,	10.15.10	779.8	P29.4	
	Persistent pulmonary hypertension of the newborn (PFC),	10.15.01	747.9	P29.3	Persistent fetal circulation
c1	Fetal abnormality,	14.10.01	655.9	O35.9	
c2	Increased nuchal thickness,	14.10.12	655.9	O28.3	
c2	Fetal hydrops,	14.10.02	778.0	36.2	
	Twin-to-twin transfusion syndrome,	14.10.11	762.3	P02.3	
	Fetal arrhythmia,	14.10.06	768.2	O35.8	Arrhythmia
c2	Fetal echocardiographic abnormality,	14.10.25	655.9	O28.3	
	Fetal structural heart abnormality,	14.10.60	655.9	O28.3	
	Fetal echogenic focus ('golf ball'),	14.10.08	655.9	O28.3	
	Fetal abnormal venous Doppler flow,	14.10.26	655.9	O28.3	
	Fetal unexplained R heart dominance,	14.10.07	655.9	O28.3	
	Fetal unexplained L heart dominance,	14.10.45	655.9	O28.3	

### Chromosomal anomalies and other syndromes

c1	Chromosomal anomaly,	14.01.01	758.9	Q99.9	Other chromosomal/syndromic abnormality
	Trisomy 21 - Down's syndrome,	14.01.02	758.0	Q90.9	Down Syndrome
	45XO - Turner's syndrome,	14.01.05	758.6	Q96	Turner Syndrome
	22q11 microdeletion - CATCH 22,	14.01.21	758.3	Q93.8	22q11 deletion
	Trisomy 18 - Edwards' syndrome,	14.01.03	758.2	Q91.3	Other chromosomal/syndromic abnormality
	Trisomy 13 - Patau's syndrome,	14.01.04	758.1	Q91.7	Other chromosomal/syndromic abnormality
c1	Hereditary disorder associated with heart disease,	10.23.04	759.7	Q87.8	Other chromosomal/syndromic abnormality
	Pompe's disease: glycogen storage disease type IIa,	14.02.21	271.0	E74.0	Other chromosomal/syndromic abnormality
	Friedreich's ataxia,	14.02.10	334.0	G11.1	Other chromosomal/syndromic abnormality
	Duchenne's muscular dystrophy,	14.02.34	359.1	G71.0	Other chromosomal/syndromic abnormality
	Marfan syndrome,	14.02.17	759.8	Q87.4	Marfan syndrome
	Noonan syndrome,	14.02.19	759.8	Q87.1	Other chromosomal/syndromic abnormality

	Tuberous sclerosis,	14.02.28	759.5		Q85.1	Other chromosomal/syndromic abnormality
	DiGeorge sequence,	14.02.06	279.1		D82.1	DiGeorge
	Williams syndrome (infantile hypercalcaemia),	14.02.30	275.4	747.2	Q93.8	Williams Beuren syndrome
	Alagille syndrome: arteriohepatic dysplasia,	14.02.66	751.6		Q44.7	Alagille syndrome (intrahepatic biliary duct agenesis)
	Fetal rubella syndrome,	14.02.32	771.0		P35.0	Rubella
c1	Syndrome/association with cardiac involvement,	14.02.00	759.9		Q87.8	Other chromosomal/syndromic abnormality

c1	Dyslipidaemia,	10.19.01	272.4		E78.9	
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### Non-cardiac anomalies associated with heart anomalies

	Hereditary/ non-cardiac abnormality not apparent,	10.23.00	nc		nc	None
c1	Non-cardiac abnormality associated with heart disease,	14.03.00	759.9		Q89.9	Other preoperative noncardiac abnormality
	Spleen absent (asplenia),	03.07.03	759.0		Q20.6	Asplenia
	Multiple spleens (polysplenia),	03.07.04	759.0		Q20.6	Polysplenia
	Cystic fibrosis,	14.03.06	277.0		E84.9	Other preoperative noncardiac abnormality
	Tracheo-oesophageal fistula,	14.03.08	750.3		Q39.2	Other preoperative noncardiac abnormality
	Diaphragmatic hernia,	14.03.07	756.6		Q79.0	Other preoperative noncardiac abnormality
	Omphalocele,	14.03.10	553.1		Q79.2	Other preoperative noncardiac abnormality
	Duodenal stenosis/atresia,	14.03.11	751.1		Q41.0	Other preoperative noncardiac abnormality
c1	Renal abnormality,	14.03.23	753.9		Q64.9	Other preoperative noncardiac abnormality
	Microcephaly,	14.03.33	742.1		Q02	Other preoperative noncardiac abnormality
	Psychomotor developmental delay,	14.03.05	315.5		F79	Other preoperative noncardiac abnormality
	Cleft lip / palate,	14.04.12	749.2		Q37	Other preoperative noncardiac abnormality
	Kyphoscoliosis,	14.04.09	756.1		Q67.5	Other preoperative noncardiac abnormality
c1	Anterior chest wall (pectus) deformity,	14.04.14	754.8		Q67.8	Pectus
	Pectus carinatum,	14.04.04	754.8		Q67.7	Pectus
	Pectus excavatum,	14.04.05	754.8		Q67.6	Pectus
c1	Non-cardiothoracic / vascular abnormality (DESCRIBE),	14.03.04	759.8		Q89.8	Miscellaneous, Other
c1	Thoracic / mediastinal abnormality,	14.03.29	759.8		Q89.8	Thoracic and / or mediastinal, Other

### Diagnostic codes for acquired and post-procedural abnormalities or disorders

#### Rheumatic and infective heart disease

c1	Acute rheumatic fever,	10.05.01	390		I00	
	Rheumatic fever with cardiac involvement,	10.05.21	391		I01	Cardiac, Other
c1	Rheumatic valvar disease,	10.05.30	397.9		I09.1	Cardiac, Other
c2	Rheumatic mitral valvar disease,	10.05.31	394.9		I05.9	Mitral valve, Other
c2	Rheumatic aortic valvar disease,	10.05.33	395.9		I06.9	Aortic valve, Other
c1	Infective endocarditis,	10.06.01	421.0		I33.0	Endocarditis
c2	Bacterial endocarditis,	10.06.41	421.0		I33.0	Endocarditis
	Post-procedural endocarditis,	10.06.64	421.0	E878.8	I33.0	Y83.8 Postoperative endocarditis
c1	Heart abscess,	10.06.20	429.8		I51.8	Cardiac, Other
c1	Infectious myocarditis,	10.07.01	422.9		I40.0	Cardiac, Other
c2	Viral myocarditis,	10.07.03	422.9	79.9	I40.0	B97 Cardiac, Other
	Trypanosomal myocarditis (Chagas' disease),	10.07.08	86.0†	425.6*	B57.2†	I41.2* Cardiac, Other
c1	Infectious pericarditis,	10.08.01	420.9		I30.1	Pericarditis
	Viral pericarditis,	10.08.03	420.9	79.9	I30.1	B97 Pericarditis
c2	Bacterial pericarditis,	10.08.04	420.9	41.9	I30.1	B96.8 Pericarditis

#### Great vein and atrial acquired abnormalities

c1	Systemic vein abnormality - acquired,	10.30.00	459.9		I87.9	Cardiac, Other
c2	Systemic vein obstruction,	10.30.09	459.2		I87.1	Y83.8 Systemic vein obstruction
c1	SVC abnormality - acquired,	10.31.01	459.9		I87.9	Cardiac, Other
c2	Post-procedural SVC complication,	15.04.01	459.9	E878.8	I87.9	Y83.8 Cardiac, Other
c1	IVC abnormality - acquired,	10.31.21	459.9		I87.9	Cardiac, Other

c2	Post-procedural IVC complication,	15.04.05	459.9	E878.8	I87.9	Y83.8	Cardiac, Other
c1	Pulmonary venous abnormality - acquired,	10.24.00	459.9		I28.9		Cardiac, Other
c2	Post-procedural pulmonary vein complication,	15.05.01	459.9	E878.8	I28.9	Y83.8	Cardiac, Other
c2	Pulmonary vein obstruction,	15.05.03	459.2	E878.8	I28.8	Y83.8	Pulmonary vein obstruction
c1	Post-procedural major vein complication,	15.04.34	459.9	E878.8	I87.9	Y83.8	Peripheral vascular, Other
c2	Post-procedural femoral vein complication,	15.04.15	459.9	E878.8	I87.9	Y83.8	Peripheral vascular, Other
c1	RA abnormality - acquired,	15.10.10	429.8		I51.8		Cardiac, Other
c2	Post-procedural RA complication,	15.10.11	997.1	E878.8	I97.8		Cardiac, Other
	Obstruction of RA conduit (TCPC),	15.10.13	996.7		T82.8		Conduit failure
c1	LA abnormality - acquired,	15.10.20	429.8		I51.8		Cardiac, Other
c2	Post-procedural LA complication,	15.10.21	997.1	E878.8	I97.8		Cardiac, Other
c1	Atrial septum abnormality - acquired,	10.17.40	429.8		I51.8		Cardiac, Other
c2	Post-procedural atrial septum complication,	15.10.61	997.1		I97.8		Cardiac, Other
	Residual ASD,	15.10.63	745.5	E878.8	Q21.1	Y83.8	ASD
	Ineffective balloon atrial septostomy,	15.10.66	429.4	E878.8	I97.8	Y83.8	

### Acquired valvar and AV septal defect abnormalities

c1	Heart valvar abnormality - acquired,	10.32.00	424.9		I38		Cardiac, Other
	Prosthetic valve failure,	10.33.00	996		T82.0		Prosthetic valve failure
c1	Tricuspid valvar abnormality - acquired,	10.32.01	424.2		I36.9		Tricuspid valve, Other
c2	Post-procedural tricuspid valvar complication,	15.11.00	424.2	E878.8	I36.9	Y83.8	Tricuspid valve, Other
	Residual tricuspid regurgitation,	15.11.03	746.8	E878.8	Q22.8	Y83.8	Tricuspid regurgitation, non-Ebstein's related
c2	Tricuspid valvar prosthesis complication,	15.11.08	996.0		T82.0		Tricuspid valve, Other
c1	Mitral valvar abnormality - acquired,	10.33.01	424.0		I34.9		Mitral valve, Other
c2	Mitral stenosis - acquired,	10.33.02	394.0		I34.2		Mitral stenosis, Valvar
	Mitral valvar stenosis - recurrent,	10.33.03	394.0		I34.2		Mitral stenosis, Valvar
c2	Mitral regurgitation - acquired,	10.33.04	424.0		I34.0		Mitral regurgitation
	Mitral regurgitation - recurrent,	10.33.06	424.0		I34.0		Mitral regurgitation
c2	Post-procedural mitral valvar complication,	15.12.00	394.9	E878.8	I34.9	Y83.8	Mitral valve, Other
	Residual mitral valvar stenosis,	15.12.01	746.5	E878.8	Q23.2	Y83.8	Mitral stenosis, Valvar
	Residual mitral regurgitation,	15.12.03	746.6	E878.8	Q23.3	Y83.8	Mitral regurgitation
c2	Mitral valvar prosthesis complication,	15.12.09	996.0		T82.0		Mitral valve, Other
c1	Truncal valvar abnormality - acquired,	10.37.01	424.9		I38		Cardiac, Other
c2	Residual truncal regurgitation,	15.25.03	746.9	E878.8	Q24.8	Y83.8	Truncal valve insufficiency
c1	Common arterial trunk abnormality - acquired,	10.51.01	447.8		I77.8		Cardiac, Other
c1	Pulmonary valvar abnormality - acquired,	10.35.01	424.3		I37.9		Pulmonary valve, Other
c2	Pulmonary valvar stenosis - acquired,	10.35.02	424.3		I37.0		Pulmonary stenosis, Valvar
	Pulmonary valvar stenosis - recurrent,	10.35.03	424.3		I37.0		Pulmonary stenosis, Valvar
	Pulmonary regurgitation - acquired,	10.35.04	424.3		I37.1		Cardiac, Other
	Pulmonary valvar atresia - acquired,	09.05.15	424.3		I37.8		Pulmonary atresia
c2	Post-procedural pulmonary valvar complication,	15.30.00	424.3	E878.8	I37.9	Y83.8	Pulmonary valve, Other
	Residual pulmonary valvar stenosis,	15.30.01	746.0	E878.8	Q22.1	Y83.8	Pulmonary stenosis, Valvar
	Residual pulmonary regurgitation,	15.30.03	746.0	E878.8	Q22.2	Y83.8	Pulmonary insufficiency
c2	Pulmonary valvar prosthesis complication,	15.30.08	996.0		T82.0		Pulmonary valve, Other
c1	Aortic valvar abnormality - acquired,	10.36.01	424.1		I35.9		Aortic valve, Other
c2	Aortic valvar stenosis - acquired,	10.36.02	424.1		I35.0		Aortic stenosis, Valvar
	Aortic valvar stenosis - recurrent,	10.36.03	424.1		I35.0		Aortic stenosis, Valvar
	Aortic regurgitation - acquired,	10.36.04	424.1		I35.1		Aortic insufficiency
	Aortic regurgitation - recurrent,	10.36.06	424.1		I35.1		Aortic insufficiency
c2	Post-procedural aortic valvar complication,	15.35.00	424.1	E878.8	I35.9	Y83.8	Aortic valve, Other
	Residual aortic valvar stenosis,	15.35.01	746.3	E878.8	Q23.0	Y83.8	Aortic stenosis, Valvar
	Residual aortic regurgitation,	15.35.03	746.4	E878.8	Q23.1	Y83.8	Aortic insufficiency

c2	Aortic valvar prosthesis complication,	15.35.08	996.0		T82.0		Aortic valve, Other
c1	Post-procedural AV septal defect complication,	15.16.00	429.8	E878.8	Q21.2	Y83.8	Cardiac, Other
	Residual ventricular component of AV septal defect,	15.16.02	745.6	E878.8	Q21.2	Y83.8	VSD
c1	AV valvar abnormality in AVSD - acquired,	10.34.60	424.9		I38		Cardiac, Other
	Residual common AV valvar regurgitation,	15.13.02	746.9	E878.8	Q24.8	Y83.8	Cardiac, Other
c2	Post-procedural right AV valvar complication,	15.14.00	424.2	E878.8	I36.9	Y83.8	Cardiac, Other
c2	Post-procedural left AV valvar complication,	15.15.00	394.9	E878.8	I34.9	Y83.8	Cardiac, Other
	Acquired left AV valvar regurgitation,	10.34.44	424.0		I34.0		Mitral regurgitation

### Acquired ventricular and ventricular septal abnormalities

c1	RV abnormality - acquired,	10.16.00	429.8		I51.8		Cardiac, Other
c2	Post-procedural RV complication,	15.20.01	997.1		I97.8		Cardiac, Other
c2	RV dysfunction,	07.01.11	429.8		I51.8		Cardiac, Other
	Right ventricular / congestive heart failure,	10.16.08	428.0		I50.0		Cardiac, Other
c1	Post-procedural RV outflow tract complication,	15.20.21	429.8	E878.8	I51.8	Y83.8	Cardiac, Other
	Aneurysm of RV outflow tract patch,	15.20.25	996.7		T82.8		Aneurysm, Ventricular, Right
	Residual RV outflow tract obstruction,	15.20.23	746.8	E878.8	Q24.8	Y83.8	Pulmonary stenosis
c1	LV abnormality - acquired,	10.16.40	429.8		I51.8		Cardiac, Other
c2	Post-procedural LV complication,	15.21.01	997.1		I97.8		Cardiac, Other
c2	LV dysfunction,	07.06.10	429.8		I51.8		Cardiac, Other
	Left ventricular failure,	10.16.47	428.1		I50.1		Cardiac, Other
c1	Post-procedural LV outflow tract complication,	15.21.21	429.8	E878.8	I51.8	Y83.8	Cardiac, Other
	Recurrent LV outflow tract obstruction,	10.16.46	429.8		I51.8		Cardiac, Other
c1	Narrowing of constructed intracardiac tunnel - acquired,	10.16.81	996.7		T82.8		Cardiac, Other
c1	Subaortic stenosis in complex heart disease - acquired,	10.16.82	429.8		I51.8		Aortic stenosis, Subvalvar
	Residual subaortic stenosis in complex heart disease,	15.20.75	429.8	E878.8	I51.8	Y83.8	Aortic stenosis, Subvalvar
c1	Subpulmonary stenosis in complex heart disease - acquired,	10.16.83	429.8		I51.8		Pulmonary stenosis
	Residual subpulmonary stenosis in complex heart disease,	15.20.76	429.8	E878.8	I51.8	Y83.8	Pulmonary stenosis
c1	Abnormality associated with VSD - acquired,	10.16.60	429.8		I51.0		Cardiac, Other
	Post-myocardial infarct VSD,	10.16.62	410		I23.2		VSD
	Residual VSD,	15.22.02	745.4	E878.8	Q21.0	Y83.8	VSD

## Cardiomyopathy and heart muscle diseases

	Myocardial failure in end stage congenital heart disease,	10.07.40	428.9	746.9	I50.9	Q24.9	Cardiomyopathy, End-stage congenital heart disease
c1	Cardiomyopathy,	10.10.01	425.4		I42.9		Cardiomyopathy
c2	Hypertrophic cardiomyopathy,	10.10.20	425.4		I42.2		Cardiomyopathy
c2	Dilated cardiomyopathy,	10.10.25	425.4		I42.0		Cardiomyopathy
	Arrhythmogenic RV cardiomyopathy,	07.01.10	425.4		I42.8		Cardiomyopathy
c2	Endocardial fibroelastosis,	10.10.12	425.3		I42.4		Cardiomyopathy
	Idiopathic restrictive cardiomyopathy,	10.10.11	425.4		I42.5		Cardiomyopathy
c2	Infiltrative cardiomyopathy,	10.10.13	425.4		I42.8		Cardiomyopathy
c1	Drug induced heart muscle disease,	10.07.05	425.9		I42.7		Cardiac, Other
c1	Nutritional heart muscle disease,	10.07.61	269.9†	425.7*	E63.9†	I43.2*	Cardiac, Other
c1	Heart muscle disease in collagen vascular disorder,	10.07.81	710.9†	425.8*	M35.9†	I43.8*	Cardiac, Other

## Acquired pulmonary arterial abnormalities

c1	Pulmonary arterial abnormality - acquired,	10.13.50	417.9		I28.9		Cardiac, Other
c2	Post-procedural pulmonary trunk complication,	15.32.01	417.8	E878.8	I28.8	Y83.8	Cardiac, Other
c2	Post-procedural RPA complication,	15.32.21	417.8	E878.8	I28.8	Y83.8	Cardiac, Other
c2	Post-procedural LPA complication,	15.32.41	417.8	E878.8	I28.8	Y83.8	Cardiac, Other
	Residual RPA stenosis,	15.32.23	747.3	E878.8	Q25.6	Y83.8	Pulm art stenosis, Branch, Central
	Residual LPA stenosis,	15.32.43	747.3	E878.8	Q25.6	Y83.8	Pulm art stenosis, Branch, Central
c1	Pulmonary arterial hypertension,	10.13.01	416.8		I27.0		
c2	Primary pulmonary hypertension,	10.13.02	416.0		I27.0		Primary pulmonary hypertension
c2	Secondary pulmonary hypertension,	10.13.20	416.8		I27.8		
	Pulmonary hypertension due to L to R shunt,	10.13.21	416.8		I27.8		
c1	Pulmonary vascular disease,	10.13.06	416.8		I27.8		Pulmonary vascular obstructive disease (Eisenmenger)
	Irreversible pulmonary vascular disease (Eisenmenger),	10.13.08	416.8		I27.8		Pulmonary vascular obstructive disease (Eisenmenger)
c1	Pulmonary embolism,	10.13.51	415.1		I26.9		Pulmonary embolism

## Acquired systemic arterial, coronary and ductal abnormalities

c1	Abnormality of aorta - acquired,	10.14.70	447.8		I77.8		Cardiac, Other
c2	Post-procedural ascending aorta complication,	15.36.01	447.8	E878.8	I77.8	Y83.8	Cardiac, Other
c2	Post-procedural descending aorta complication,	15.37.01	447.8	E878.8	I77.8	Y83.8	Cardiac, Other
c2	Residual aortic coarctation,	15.37.05	747.1	E878.8	Q25.1	Y83.8	Coarctation of aorta
c2	Post-procedural aneurysm of aorta at coarctation site,	15.37.07	441.2	E878.8	I71.2	Y83.8	Aneurysm, Other
	Recoarctation of aorta,	10.14.72	447.1		I77.1		Coarctation of aorta
c2	Ascending aorta dilation - acquired,	10.14.40	441.6		I71.9		Cardiac, Other
c2	Aortic dissection,	10.14.51	441.0		I71.0		Aortic dissection
	Ascending aorta dissection & propagation beyond arch (Type I),	10.14.52	441.0		I71.0		Aortic dissection
	Ascending aorta dissection not beyond arch (Type II),	10.14.53	441.0		I71.0		Aortic dissection
	Descending aorta dissection & distal propagation (Type III),	10.14.54	441.0		I71.0		Aortic dissection
c2	Aortic aneurysm,	10.14.50	441.2		I71.2		Aortic aneurysm (including pseudoaneurysm)
	Ascending aorta aneurysm,	10.14.42	441.2		I71.2		Aortic aneurysm (including pseudoaneurysm)
	Descending aorta aneurysm,	10.14.43	441.2		I71.2		Aortic aneurysm (including pseudoaneurysm)
	Abdominal aorta aneurysm,	10.14.44	441.4		I71.4		Aortic aneurysm (including pseudoaneurysm)
	Rupture of thoracic aortic aneurysm,	10.14.45	441.1		I71.1		Aortic dissection
	Rupture of abdominal aortic aneurysm,	10.14.46	441.3		I71.5		Aortic dissection
c1	Systemic arteritis,	10.14.60	447.6		I77.6		
c1	Kawasaki disease,	10.09.01	446.1		M30.3		
	Kawasaki disease without cardiac involvement,	10.09.08	446.1		M30.3		
	Kawasaki disease with aneurysm or dilation coronary vessels,	10.09.02	446.1	414.1	M30.3	I25.4	Coronary artery anomaly, Aneurysm
c1	Acquired coronary arterial disease,	10.09.10	414.9		I25.9		Coronary artery anomaly, Other
c2	Ischaemic heart disease,	10.09.30	414.9		I25.9		Coronary artery anomaly, Other
c2	Myocardial infarction,	10.18.00	410		I21.9		Myocardial infarction
c3	Acute myocardial infarction,	10.18.01	410		I21.9		Myocardial infarction
c2	Post-procedural coronary arterial complication,	15.41.00	447.8	E878.8	I77.8	Y83.8	Coronary artery anomaly, Other

c1	Systemic hypertension,	10.14.01	401.9	I10		
	Primary (essential) systemic hypertension,	10.14.02	401.9	I10		
c2	Secondary systemic hypertension,	10.14.00	405.9	I15.9		
	Systemic hypertension due to aortic arch obstruction,	10.14.04	405.9	I15.8		
c1	Acquired arterial duct (ductus arteriosus) abnormality,	10.14.80	447.8	I77.8		Cardiac, Other
c2	Post-procedural arterial duct complication,	15.39.01	447.8	E878.8	I77.8	Y83.8
	Residual arterial duct (PDA) patency,	15.39.02	747.0	E878.8	Q25.0	Y83.8
c1	Post-procedural systemic-to-pulmonary collateral artery complication,	15.39.50	447.8	E878.8	I77.8	Y83.8

### Acquired cardiac conduit / shunt, pericardial and post-transplant abnormalities

c1	Cardiac conduit complication,	15.55.00	996.7	T82.9		Conduit failure
c2	Cardiac conduit failure,	15.55.16	996.0	T82.5		Conduit failure
c1	Systemic-pulm arterial shunt complication,	15.56.00	996.7	T82.9		
c2	Systemic to PA shunt partial obstruction,	15.56.01	996.0	T82.5		
	Systemic to PA shunt complete obstruction,	15.56.02	996.0	T82.5		
c1	Pericardial abnormality - acquired,	10.08.29	423.9	I31.9		Pericardial disease, Other
c2	Pericarditis,	10.08.00	420.9	I30.9		Pericarditis
	Constrictive pericarditis,	10.08.09	423.2	I31.1		Pericardial disease, Other
c2	Pericardial effusion,	10.08.31	423.9	I31.3		Pericardial effusion
c1	Heart tumour,	10.03.01	239.8	D48.7		Cardiac tumor
c1	Traumatic injury of heart,	10.90.01	861.0	S26		Cardiac, Other
c1	Complication after heart or lung transplant,	15.95.00	996.8	E878.0	I97.9	Y83.0
c2	Heart muscle disease in cardiac rejection,	10.07.42	996.8	T86.2		Cardiac, Other
	Cardiac transplant associated coronary arteriosclerosis,	15.41.13	414.0	996.8	I25.1	T86.2
	Lung disease in lung transplant rejection,	15.95.66	996.8	T86.3		
	Post-lung transplant obliterative bronchiolitis,	15.95.64	491.8	996.8	J44.8	T86.3

### Diagnostic codes for rhythm and conduction disturbances

c1	ECG abnormality,	11.20.00	794.3	R94.3		Arrhythmia
c1	Arrhythmia,	11.00.00	427.9	I49.9		Arrhythmia
c1	Cardiac arrest,	11.00.21	427.5	I46.9		Arrhythmia
	Sinus bradycardia,	11.02.04	427.8	I49.8		Arrhythmia
	Sinus tachycardia,	11.02.07	427.8	I47.1		Arrhythmia
c1	Supraventricular rhythm disturbance,	11.01.01	427.0	I49.8		Arrhythmia, atrial
c2	Supraventricular tachycardia,	11.01.00	427.0	I47.1		Arrhythmia, atrial
	Ectopic (automatic) atrial tachycardia,	11.03.12	427.8	I47.1		Arrhythmia, atrial
c2	Sinus node dysfunction (sick sinus),	11.02.03	427.8	I49.5		Arrhythmia, atrial
c2	Premature atrial complexes,	11.03.21	427.6	I49.1		Arrhythmia, atrial
	Atrial flutter,	11.03.07	427.3	I48		Arrhythmia, atrial
	Atrial fibrillation,	11.03.08	427.3	I48		Arrhythmia, atrial
	Paroxysmal atrial tachycardia,	11.03.05	427.0	I47.1		Arrhythmia, atrial
c1	Rhythm disturbance at level of AV junction,	11.04.00	427.8	I49.8		Arrhythmia, atrial
	AV junctional (nodal) tachycardia,	11.04.07	427.0	I47.1		Arrhythmia, atrial
	AV nodal re-entry tachycardia,	11.04.11	427.0	I47.1		Arrhythmia, atrial
	His bundle (junctional ectopic) tachycardia - post op,	11.04.12	997.1	I97.1		Arrhythmia, atrial
c1	Accessory pathway,	11.07.11	426.7	I45.6		Arrhythmia, atrial
	WPW,	11.07.01	426.7	I45.6		Arrhythmia, atrial
	Accessory pathway: retrograde conduction only (concealed),	11.07.06	426.7	I45.8		Arrhythmia, atrial
	Orthodromic AV re-entry tachycardia,	11.07.22	426.7	I45.6		Arrhythmia, atrial
	Antidromic AV re-entry tachycardia,	11.07.23	426.7	I45.6		Arrhythmia, atrial
	Permanent junctional reciprocating tachycardia (PJRT),	11.07.14	427.8	I47.1		Arrhythmia, atrial

c1	Ventricular rhythm disturbance,	11.05.00	427.8	I49.8	Arrhythmia, ventricular
c2	Ventricular tachycardia,	11.05.06	427.1	I47.2	Arrhythmia, ventricular
	Non-sustained ventricular tachycardia,	11.05.50	427.1	I47.2	Arrhythmia, ventricular
	Ventricular flutter,	11.05.09	427.4	I49.0	Arrhythmia, ventricular
	Ventricular fibrillation,	11.05.10	427.4	I49.0	Arrhythmia, ventricular
c2	Premature ventricular complexes,	11.05.21	427.6	I49.3	Arrhythmia, ventricular
c1	Conduction disturbance,	11.06.00	426.9	I45.9	Arrhythmia, Heart block
	Sinoatrial block,	11.06.01	426.6	I45.5	Arrhythmia, atrial
	1st degree AV block,	11.06.02	426.1	I44.0	Arrhythmia, atrial
c2	2nd degree AV block,	11.06.03	426.1	I44.1	Arrhythmia, atrial
c2	Complete AV block,	11.06.07	426.0	I44.2	Arrhythmia, Heart block
	Congenital complete heart block,	11.06.16	746.8	Q24.6	Arrhythmia, Heart block, Congenital
	Acquired complete AV block,	11.06.10	426.0	I44.2	Arrhythmia, Heart block, Acquired
	Complete R bundle branch block,	11.06.23	426.4	I45.1	Arrhythmia
	Complete L bundle branch block,	11.06.24	426.3	I44.7	Arrhythmia
c1	Long QT interval,	11.12.01	426.9	I45.8	Arrhythmia
c1	Pacemaker dysfunction/complication,	11.11.01	996.0	T82.1	Arrhythmia, Pacemaker, Indication for replacement
	Pacemaker battery exhaustion - end of life (EOL),	11.11.03	996.0	T82.1	Arrhythmia, Pacemaker, Indication for replacement
	Pacemaker loss of capture,	11.11.17	996.0	T82.1	
	Pacemaker dysfunction / complication necessitating replacement,	11.11.00	996.0	T82.1	Arrhythmia, Pacemaker, Indication for replacement
c1	Pacemaker lead dysfunction / complication,	11.11.40	996.0	T82.1	
c1	Pacemaker generator site local complication,	11.11.59	996.0	T82.9	
c1	AICD dysfunction / complication,	11.11.60	996.0	T82.1	

## Diagnostic codes for lung and thoracic disease

	Tracheal stenosis,	16.10.01	519.1	J39.8	Tracheal stenosis
	Tracheal disease,	16.10.09	519.1	J39.8	Tracheal disease, Other
c1	Empyema,	16.01.11	510.9	J86	Empyema
	Lung disease - benign,	16.03.01	212.3	D14.3	Lung disease, Benign
	Lung disease - malignant,	16.03.21	162.9	C34.9	Lung disease, Malignant
	Lower respiratory tract infection,	16.03.02	518.9	J98.8	Pneumonia
	Respiratory failure,	16.30.01	518.8	J96.9	Thoracic and / or mediastinal, Other
	Pneumothorax,	16.01.01	512	J93.9	Pneumothorax
	Pleural effusion,	16.01.04	511.9	J90	Pleural effusion
	Chylothorax,	16.01.07	457.8	J94.0	Chylothorax
	Empyema,	16.01.11	510.9	J86	Empyema
	Pleural disease - benign,	16.01.21	212.4	D15.7	Pleural disease, Benign
	Pleural disease - malignant,	16.01.22	163.9	C38.4	Pleural disease, Malignant
	Oesophageal disease - benign,	16.20.01	211.0	D13.0	Esophageal disease, Benign
	Oesophageal disease - malignant,	16.20.02	150.9	C15.9	Esophageal disease, Malignant
	Mediastinal disease - benign,	16.05.11	212.5	D15.2	Mediastinal disease, Benign
	Mediastinal disease - malignant,	16.05.12	164.9	C38.3	Mediastinal disease, Malignant
	Diaphragm disease,	16.15.09	519.4	J98.6	Diaphragm disease, Other

## Diagnostic codes for symptoms and signs

c1	Symptom / sign of heart disease,	10.17.00	785.9	R09.8	
c2	Syncope,	10.40.01	780.2	R55	
	Cyanosis,	10.17.03	782.5	R23.0	
	Heart failure,	10.17.05	428.9	I50.9	
	Cyanotic spells,	10.17.12	785.9	R09.8	
	Palpitations,	10.17.13	785.1	R00.2	
	Chest pain,	10.12.42	786.5	R07.4	
	Failure to thrive,	10.12.39	783.4	R62.8	
c2	Hypotension,	10.40.30	458.9	I95.9	
	Cardiac symptom without pathology (DESCRIBE),	10.17.09	785.9	R09.8	

## Diagnostic codes for Preoperative Risk Factors

c1	No pre-procedural risk factors,	10.20.00	nc	nc	None
	Pre-procedural risk factor,	10.20.19	nc	nc	Other preoperative risk factor
	Pre-procedural arrhythmia,	10.20.03	427.9	I49.9	Preoperative arrhythmia
	Pre-procedural complete AV block,	11.06.35	426.0	I44.2	Preoperative complete AV block
	Pre-procedural shock,	10.20.02	785.5	R57.0	Preoperative shock
	Pre-procedural acidosis,	10.20.05	276.9	E87.8	Preoperative acidosis
	Pre-procedural pulmonary hypertension,	10.20.16	518.5	J95.8	Preoperative pulmonary hypertensive crises (PA pressure > systemic pressure)
	Pre-procedural mechanical ventilatory support,	10.20.14	V46.1	Z99.1	Preoperative mechanical ventilatory support
	Pre-procedural tracheostomy,	10.20.17	V44.0	Z93.0	Preoperative tracheostomy
c1	Pre-procedural renal failure,	10.20.07	584.9	N17.9	Preoperative renal failure (creatinine > 2)
	Pre-procedural renal failure requiring dialysis,	10.20.08	V45.1	Z99.2	Preoperative renal failure requiring dialysis
	Pre-procedural coagulation disorder,	10.20.06	286.9	D68.9	Preoperative bleeding disorder
	Pre-procedural mechanical circulatory support,	10.20.15	V46.8	Z99.8	Preoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)
	Pre-procedural septicaemia,	10.20.09	038.9	A41.9	Preoperative septicemia
	Pre-procedural endocarditis,	10.06.65	421.0	I33.0	Preoperative endocarditis
	Pre-procedural neurological impairment,	10.20.12	348.9	G93.9	Preoperative neurological deficit
	Pre-procedural seizures,	10.20.18	345.9	R56.8	Preoperative seizures

## Codes for diagnostic procedures

c1	Clinical evaluation of patient,	13.00.01
	ECG,	13.00.10
	24 hour ECG recording,	13.00.11
	Exercise stress test,	13.00.13
	Chest x-ray,	13.00.21
c1	Echocardiographic examination,	13.01.00
	Fetal echocardiographic examination,	13.01.01
	Transthoracic echocardiographic examination,	13.01.02
	Transoesophageal echocardiographic examination,	13.01.03
	CT scan of chest,	13.00.23
	MRI of heart,	13.00.24
	Myocardial perfusion scan,	13.00.31
	Exploratory procedure to assess heart,	12.32.03
	Post mortem examination of heart and lungs,	13.00.71
c1	<b>Diagnostic catheterisation procedure,</b>	13.05.01

## Diagnostic qualifier codes

- status: post-procedure,	Q1.90.51
- diagnosis uncertain,	Q1.90.67

## Codes for operations and interventions

Cardiopulmonary bypass used during procedure,	12.00.90
Cardiopulmonary bypass not used during procedure,	12.00.91
Reoperation,	12.43.00
Unplanned reoperation during current admission,	15.43.06
Cardiopulmonary bypass for non-cardiac lesion,	12.00.92
Thoracoscopic approach (VATS),	12.40.06
Minimally invasive procedure,	12.40.13
Transatrial approach,	12.08.11
Trans-RV approach,	12.08.12

### Great vein procedures

c1	Pulmonary vein procedure,	12.00.20
c1	TAPVC repair,	12.00.00
c1	Partially APVC repair,	12.00.02
	Scimitar syndrome (PAPVC) repair,	12.00.17
	Pulmonary vein stenosis repair,	12.00.03
c1	Pulmonary venous pathway procedure (post Senning/Mustard),	12.29.52
c1	Systemic vein procedure,	12.00.30
c2	Anomalous systemic venous connection repair,	12.00.81
	Systemic venous stenosis repair,	12.00.83
c1	Systemic venous pathway procedure (post Senning/Mustard),	12.00.29
c1	Coronary sinus procedure,	12.00.50

Reoperation during this admission (unplanned reoperation)  
 Bypass for non-cardiac lesion  
 VATS (video assisted thoracoscopic surgery)  
 Minimally invasive procedure

Cardiac procedure, Other  
 TAPVC repair  
 PAPVC repair  
 PAPVC, Scimitar, Repair  
 Pulmonary venous stenosis repair  
 Cardiac procedure, Other

Cardiac procedure, Other  
 Anomalous systemic venous connection repair  
 Systemic venous stenosis repair  
 Cardiac procedure, Other  
 Cardiac procedure, Other

### Atrial Procedures

c1	Right atrial procedure,	12.01.60
c1	Left atrial procedure,	12.01.30
	Cor triatriatum (divided LA) repair,	12.01.31
	Patent foramen ovale (PFO) direct closure,	12.01.53
c1	ASD closure,	12.01.01
	ASD closure with direct suture,	12.01.02
	ASD closure with patch,	12.01.03
c2	Sinus venosus ASD closure,	12.01.10
	ASD closure - partial,	12.01.08
	Coronary sinus ASD repair,	12.00.55
c1	Interatrial communication creation/ enlargement,	12.01.90
	Atrial septectomy - closed (Blalock Hanlon),	12.01.42
	Atrial septectomy,	12.01.43
c2	Fenestration of atrial septum,	12.30.20
	Atrial septation procedure,	12.01.22
	Atrial baffle procedure,	12.01.57
	Interatrial communication left open,	12.01.80

Cardiac procedure, Other  
 Cardiac procedure, Other  
 Cor triatriatum repair  
 PFO, primary closure  
 ASD repair  
 ASD repair, Primary closure  
 ASD repair, Patch  
 ASD repair  
 ASD partial closure  
 ASD repair  
 ASD creation/ enlargement  
 ASD creation/ enlargement  
 ASD creation/ enlargement  
 Atrial septal fenestration  
 ASD, Common atrium (single atrium), Septation  
 Atrial baffle procedure (non-Mustard, non-Senning)

### AV valvar & AV septal defect procedures

c1	Tricuspid valvar procedure,	12.02.00
c2	Tricuspid valvar annuloplasty,	12.02.04
c2	Tricuspid leaflet (valvoplasty) procedure,	12.02.02
c2	Tricuspid valvar replacement,	12.02.11
c2	Tricuspid valvar closure,	12.02.70
	Tricuspid valvectomy,	12.02.22

Valve surgery, Other, Tricuspid  
 Valve surgery, Other, Tricuspid  
 Valvuloplasty, Tricuspid  
 Valve replacement, Tricuspid (TVR)  
 Valve closure, Tricuspid (exclusion, univentricular approach)  
 Valve excision, Tricuspid (without replacement)

c1	Mitral valvar procedure,	12.03.00	Valve surgery, Other, Mitral
c2	Mitral valvar annuloplasty,	12.03.04	Valve surgery, Other, Mitral
c2	Mitral leaflet (valvoplasty) procedure,	12.03.03	Valvuloplasty, Mitral
c2	Mitral valvotomy,	12.03.01	Valve surgery, Other, Mitral
c2	Mitral valvar replacement,	12.03.11	Valve replacement, Mitral (MVR)
c1	Supra-mitral valvar LA-ring excision,	12.01.32	Mitral stenosis, Supravalvar mitral ring repair
c1	Mitral subvalvar apparatus procedure,	12.03.19	Valve surgery, Other, Mitral
c1	AV valvar procedure in double inlet ventricle,	12.46.00	Cardiac procedure, Other
c1	AV septal defect procedure,	12.04.00	AVC (AVSD) repair
c2	AVSD: partial (primum ASD) repair,	12.04.01	AVC (AVSD) repair, Partial (Incomplete) (PAVSD)
c2	AVSD: complete (common valve orifice) repair,	12.05.01	AVC (AVSD) repair, Complete (CAVSD)
c2	AVSD: 'intermediate' repair,	12.05.10	AVC (AVSD) repair, Intermediate (Transitional)
c2	AVSD: R AV valvar procedure,	12.04.20	Valvuloplasty, Tricuspid
c2	AVSD: L AV valvar procedure,	12.04.40	Valvuloplasty, Mitral
c2	AVSD: L AV valvar replacement,	12.04.45	Valve replacement, Mitral (MVR)
	AVSD: Suturing together sup + inf bridging leaflets to L of septum ('clef'),	12.48.02	Valvuloplasty, Mitral
	AVSD & Tetralogy of Fallot repair,	12.05.11	TOF- AVC (AVSD) repair
<b>Ventricular and ventricular septum procedures</b>			
c1	RV procedure,	12.06.26	Cardiac procedure, Other
	Repair of double chambered RV,	12.06.35	DCRV repair
	RV aneurysm repair,	12.06.38	Aneurysm, Ventricular, Right, Repair
c1	RV outflow tract procedure,	12.06.00	RVOT procedure
c2	RV outflow tract obstruction relief,	12.06.41	RVOT procedure
c2	Subpulmonary obstruction relief,	12.08.21	RVOT procedure
	1.5 ventricle repair: RV outflow tract reconstruction + Glenn anastomosis,	12.06.19	1 1/2 ventricular repair
c1	LV procedure,	12.07.26	Cardiac procedure, Other
c2	LV aneurysm repair,	12.07.37	Aneurysm, Ventricular, Left, Repair
	Partial left ventriculectomy / volume reduction (Batista),	12.07.38	Partial left ventriculectomy (LV volume reduction) (Batista)
c1	LV outflow tract procedure,	12.07.00	Cardiac procedure, Other
c2	LV outflow tract obstruction relief,	12.07.13	Aortic stenosis, Subvalvar, Repair
	LV outflow tract myectomy / myotomy,	12.07.11	Aortic stenosis, Subvalvar, Repair
c3	Subaortic obstruction relief,	12.08.22	Aortic stenosis, Subvalvar, Repair
	Subaortic fibromuscular shelf resection,	12.07.01	Aortic stenosis, Subvalvar, Repair
	LV outflow tract obstruction relief - complex (Konno etc),	12.07.12	Konno procedure
c1	VSD closure,	12.08.01	VSD repair
	VSD closure by direct suture,	12.08.02	VSD repair, Primary closure
	VSD closure using patch,	12.08.03	VSD repair, Patch
	Closure of multiple VSDs,	12.08.16	VSD multiple repair
	VSD closure with prosthesis - intraoperatively,	12.08.28	VSD repair
c1	VSD enlargement/ creation,	12.08.35	VSD creation / enlargement
	VSD enlargement,	12.08.06	VSD creation / enlargement
	Open fenestration of VSD patch,	12.08.19	Ventricular septal fenestration
<b>VA valvar and great arterial procedures</b>			
c1	Common arterial trunk (truncus) repair,	12.11.00	Truncus Arteriosus repair
c1	Repair of truncal valve cusp(s) (valvoplasty),	12.11.34	Valvuloplasty, truncal valve
	Truncal valve replacement,	12.11.41	Valve replacement, Truncal valve
c1	Pulmonary valvar procedure,	12.13.00	Valve surgery, Other, Pulmonic
	Pulmonary valvotomy - open,	12.13.02	Valvuloplasty, Pulmonic
	Pulmonary valvar replacement (not conduit),	12.13.21	Valve replacement, Pulmonic (PVR)
	Pulmonary valvar replacement using homograft,	12.13.22	Valve replacement, Pulmonic (PVR)
c2	Pulmonary valvectomy,	12.13.12	Valve excision, Pulmonary (without replacement)
	Pulmonary valve closure/oversewing,	12.13.15	Valve closure, Semilunar
	Pulmonary trunk band (PA band),	12.14.02	PA banding (PAB)

	Pulmonary trunk band removal (de-band),	12.14.03	PA debanding
	Pulmonary artery ligation,	12.14.31	Ligation, Pulmonary artery
	Pulmonary trunk arterioplasty,	12.14.01	PA reconstruction (plasty), Main (trunk)
c1	Pulmonary arterioplasty/ reconstruction,	12.14.20	PA reconstruction (Plasty)
	Pulmonary arterioplasty/ reconstruction - central (proximal to hilar bifurcation),	12.14.21	PA reconstruction (plasty), Branch, Central (within the hilar bifurcation)
	Pulmonary arterioplasty/ reconstruction - peripheral (at/beyond hilar bifurcation),	12.14.22	PA reconstruction (plasty), Branch, Peripheral (at or beyond the hilar bifurcation)
	Pulmonary aneurysm repair,	12.15.24	Aneurysm, Pulmonary artery, Repair
c2	Pulmonary arteriovenous fistula closure,	12.25.07	Pulmonary AV fistula repair / occlusion
c1	Pulmonary embolectomy,	12.15.48	Pulmonary embolectomy
c1	Aortic valvar procedure,	12.16.00	Valve surgery, Other, Aortic
	Aortic valvotomy - closed,	12.16.04	Valvuloplasty, Aortic
	Aortic valvotomy - open,	12.16.02	Valvuloplasty, Aortic
c2	Aortic valvoplasty,	12.16.11	Valvuloplasty, Aortic
	Aortic valve closure/oversewing,	12.16.61	Valve closure, Semilunar
	'Annuloplasty' of aortic valve,	12.16.14	Other annular enlargement procedure
c2	Aortic valvar replacement,	12.16.21	Valve replacement, Aortic (AVR)
	Aortic valvar replacement using homograft,	12.16.22	Valve replacement, Aortic (AVR), Homograft
	Aortic valvar replacement using heterograft bioprosthesis,	12.16.28	Valve replacement, Aortic (AVR), Bioprosthetic
	Aortic valvar replacement using mechanical prosthesis,	12.16.29	Valve replacement, Aortic (AVR), Mechanical
c1	Aortic root replacement (not Ross),	12.16.50	Aortic root replacement
	Aortic root replacement using homograft,	12.16.63	Aortic root replacement, Homograft
	Aortic root replacement using mechanical prosthesis,	12.16.64	Aortic root replacement, Mechanical
c1	Aortic valvar & asc aorta replacement + coronary arterial inclusion (Bentall),	12.16.33	Aortic root replacement
c1	Ascending aorta replacement,	12.16.65	Aortic aneurysm repair
	Ascending aorta replacement & aortic valvar resuspension,	12.16.35	Aortic aneurysm repair
	Ross procedure (Ao root replacement with pulm autograft),	12.16.30	Ross procedure
	Ross-Konno procedure,	12.16.62	Ross - Konno procedure
c1	Aortic sinus of Valsalva procedure,	12.16.80	Cardiac procedure, Other
c2	Aortic sinus of Valsalva distal fistula closure,	12.16.81	Sinus of Valsalva , Aneurysm repair
	Aortic sinus of Valsalva aneurysm repair,	12.16.85	Sinus of Valsalva , Aneurysm repair
c1	Aorto-LV tunnel closure,	12.16.90	LV to aorta tunnel repair
c1	Aortopulmonary window closure,	12.12.01	AP window repair
c1	Pulmonary artery origin from ascending aorta (hemitruncus) repair,	12.14.30	Pulmonary artery origin from ascending aorta Hemitruncus repair
c1	Supravalvar aortic stenosis repair,	12.16.40	Aortic stenosis, Supravalvar, Repair
c1	Aorta aneurysm repair,	12.16.42	Aortic aneurysm repair
	Aortic arch aneurysm repair,	12.16.66	Aortic aneurysm repair
	Descending aorta aneurysm repair,	12.16.67	Aortic aneurysm repair
	Abdominal aorta aneurysm repair,	12.16.68	Aortic aneurysm repair
c1	Aortic dissection repair,	12.16.59	Aortic dissection repair
c1	Systemic arterial procedure,	12.22.00	Peripheral vascular procedure, Other
c1	Vascular ring procedure,	12.17.11	Vascular ring repair
c2	Pulmonary arterial sling repair,	12.17.32	Pulmonary artery sling repair
c1	Aortic arch repair,	12.18.30	Aortic arch repair
c2	Coarctation / hypoplasia of aorta repair,	12.18.00	Coarctation repair
	Aortic coarct/hypoplasia repair: resection & end/end anast,	12.18.01	Coarctation repair, End to end
	Aortic coarct/hypoplasia repair: patch aortoplasty,	12.18.02	Coarctation repair, Patch aortoplasty
	Aortic coarct/hypoplasia repair: subclavian flap aortoplasty,	12.18.03	Coarctation repair, Subclavian flap
	Aortic coarct/hypoplasia repair: extended resection & end/end anast,	12.18.10	Coarctation repair, End to end, Extended
	Aortic coarct/hypoplasia repair: resection + insertion tube graft,	12.18.15	Coarctation repair, Interposition graft
c2	Interrupted aortic arch repair,	12.21.00	Interrupted aortic arch repair
c1	Arterial duct procedure,	12.24.00	Cardiac procedure, Other
c2	Arterial duct (PDA) closure,	12.24.10	PDA closure
c3	Patent arterial duct (PDA) closure - surgical,	12.24.20	PDA closure, Surgical

### Fallot, double outlet ventricle and transposition procedures

c1	Tetralogy of Fallot repair,	12.26.01	TOF repair
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	Tetralogy of Fallot repair with transannular patch,	12.26.13	TOF repair, Ventriculotomy, Transannular patch
	Tetralogy of Fallot repair without transannular patch,	12.26.20	TOF repair, Ventriculotomy, Nontransannular patch
	RV to pulmonary artery conduit construction,	12.36.01	Cardiac procedure, Other
c1	Double outlet RV (Fallot-type) repair,	12.27.01	DORV repair
c1	Pulmonary atresia & VSD (including Fallot-type) repair,	12.28.01	Pulmonary atresia - VSD (including TOF, PA) repair
	Pulmonary atresia, VSD & MAPCAs repair,	12.28.11	Pulmonary atresia - VSD - MAPCA (pseudotruncus) repair
	Absent pulmonary valve syndrome (Fallot type) repair,	12.26.21	TOF- Absent pulmonary valve repair
c1	Major systemic-to-pulmonary collateral artery (MAPCA) occlusion,	12.25.18	Occlusion MAPCA(s)
c1	Unifocalisation procedure,	12.25.00	Unifocalization MAPCA(s)
c1	Arterial switch procedure,	12.29.21	Arterial switch operation (ASO)
	Senning procedure (atrial inversion),	12.29.01	Senning
	Mustard procedure (atrial inversion),	12.29.02	Mustard
	Rastelli procedure: LV to Ao via VSD & RV to pulm trunk conduit,	12.29.11	Rastelli
	REV procedure: LV to Ao via VSD & direct RV-PA anast (Lecompte),	12.27.45	REV
c1	Complex transposition of great arteries repair (DESCRIBE),	12.29.40	TGA, Other procedures (Nikaido, Kawashima, LV-PA conduit, other)
c1	Double outlet RV repair,	12.29.20	DORV repair
c2	Double outlet RV repair with intraventricular tunnel,	12.27.02	DORV, Intraventricular tunnel repair
c1	Congenitally corrected TGA repair,	12.27.46	Congenitally corrected TGA repair
	Arterial and atrial switch procedures (double switch),	12.29.25	Cardiac procedure, Other
	Arterial switch and Rastelli procedures,	12.29.26	Cardiac procedure, Other
c1	Double outlet LV repair,	12.27.50	DOLV repair

## Procedures for functionally univentricular heart

c1	Bidirectional superior cavopulmonary (Glenn) anastomosis,	12.31.11	Bidirectional cavopulmonary anastomosis (BD CPA) (bidirectional Glenn)
	Bilateral bidirectional superior cavopulmonary (Glenn) anastomoses,	12.31.44	Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
c1	Unidirectional superior cavopulmonary (Glenn) anastomosis,	12.31.45	Glenn (Unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
	Hemi-Fontan procedure,	12.31.15	Hemifontan
c1	Fontan type procedure,	12.30.01	Fontan
	Fontan procedure with direct atrio-pulmonary anastomosis,	12.30.32	Fontan, Atrio-pulmonary connection
	Fontan procedure with atrio-ventricular connection,	12.30.13	Fontan, Atrio-ventricular connection
c2	Fenestration of Fontan type connection,	12.30.27	Fontan, Other
	Fontan-type connection without fenestration,	12.30.28	Fontan, Other
c2	Total cavopulmonary connection (TCPC),	12.30.50	Fontan
	Total cavopulmonary conn (TCPC) with lateral atrial tunnel,	12.30.51	Fontan, TCPC, Lateral tunnel
	Total cavopulmonary conn (TCPC) using extracardiac IVC-PA conduit,	12.30.54	Fontan, TCPC, External conduit
c1	Takedown of Fontan type procedure,	12.30.31	Fontan, Other
	Takedown of total cavopulmonary connection (TCPC),	12.30.56	Fontan, Other
c1	Takedown of Glenn,	12.31.42	Cardiac procedure, Other
	Damus-Kaye-Stansel type procedure: pulm trunk to aorta end/side anastomosis,	12.09.03	Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)
c1	Norwood type procedure,	12.10.00	Norwood procedure
	Hypoplastic left heart biventricular repair,	12.10.05	HLHS biventricular repair
c1	Ventricular septation procedure,	12.09.01	Cardiac procedure, Other

## Shunt and conduit procedures

c1	Systemic-to-pulmonary arterial shunt procedure,	12.31.30	Shunt, Systemic to pulmonary
c2	Modified Blalock interposition shunt,	12.31.46	Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
	Modified R Blalock interposition shunt,	12.31.03	Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
	Modified L Blalock interposition shunt,	12.31.04	Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
	Waterston (ascending Ao-RPA) anastomosis,	12.31.05	Shunt, Systemic to pulmonary, Other
c2	Central systemic-PA interposition shunt,	12.31.06	Shunt, Systemic to pulmonary, Central (from aorta or to main pulmonary artery)
c1	Closure of systemic-to-PA shunt,	12.31.31	Shunt, Ligation and takedown
c1	Conduit construction procedure,	12.36.00	Cardiac procedure, Other
c2	RV to pulmonary artery conduit construction,	12.36.01	Conduit placement, RV to PA
	LV to pulmonary artery conduit construction,	12.36.02	Conduit placement, LV to PA
c1	Procedure involving constructed cardiac conduit / shunt,	12.36.40	Conduit reoperation
	Replacement of cardiac conduit,	12.36.10	Conduit reoperation

## Coronary arterial surgical and transluminal procedures

c1	Anomalous coronary artery (eg ALCAPA) repair,	12.23.00	Anomalous origin of coronary artery from pulmonary artery repair
c1	Coronary fistula procedure,	12.23.07	Coronary artery procedure, Other
	Ligation of coronary fistula,	12.23.11	Coronary artery fistula ligation
c1	Coronary arterial bypass graft (CABG) procedure,	12.23.08	Coronary artery bypass
c1	Coronary arterial procedure (DESCRIBE),	12.23.09	Coronary artery procedure, Other
	Coronary fistula transluminal embolisation,	12.23.13	Coil embolisation
	Transluminal intracoronary injection of thrombolytic agent,	12.23.30	Cardiac procedure, Other
c1	Transluminal balloon coronary angioplasty (PTCA),	12.23.31	Balloon dilation
c1	Transluminal coronary stent implantation,	12.23.38	Stent placement
	Transluminal chemical occlusion of coronary artery,	12.23.42	Cardiac procedure, Other

## Arrhythmia, transplant and miscellaneous cardiac procedures

	DC cardioversion,	12.32.14	Cardiac procedure, Other
	Pacing to abolish arrhythmia,	12.35.60	Cardiac procedure, Other
c1	Pacemaker system placement: temporary,	12.34.60	Pacemaker procedure
c1	Pacemaker system placement: permanent,	12.34.67	Pacemaker Implantation, Permanent
	Pacemaker system placement: permanent epicardial,	12.34.63	Pacemaker Implantation, Permanent
	Pacemaker system placement: permanent endocardial,	12.34.64	Pacemaker Implantation, Permanent

c1	Pulse generator box placement,	12.34.85	Pacemaker procedure
c2	Pulse generator box replacement,	12.35.13	Pacemaker procedure
c1	Pacemaker wire procedure,	12.34.70	Pacemaker procedure
	Pacemaker wire revision procedure,	12.34.84	Pacemaker procedure
c1	Pacemaker procedure,	12.34.68	Pacemaker procedure
c1	Arrhythmia surgical procedure,	12.35.40	Arrhythmia surgery
	Open ablation procedure for atrial arrhythmia,	12.35.80	Arrhythmia surgery - Atrial, Surgical ablation
	Open ablation procedure for ventricular arrhythmia,	12.35.81	Arrhythmia surgery - Ventricular, Surgical ablation
c2	Maze operation,	12.35.53	Arrhythmia surgery
c1	Arrhythmia transluminal procedure,	12.35.57	Cardiac procedure, Other
	Transluminal cryoablation procedure for arrhythmia,	12.35.46	Cardiac procedure, Other
	Transluminal radiofrequency procedure for arrhythmia,	12.35.48	RF ablation
c1	Automatic cardioverter & defibrillator (AICD) implantation,	12.42.31	ICD (AICD) Implantation
c1	Automatic cardioverter & defibrillator (AICD) procedure (DESCRIBE),	12.42.39	ICD (AICD) ([Automatic] implantable cardioverter defibrillator) procedure
c1	Heart transplant,	12.37.01	Transplant, Heart
	Transplantation of heart - orthotopic allotransplant,	12.37.02	Transplant, Heart
	Transplantation of heart - heterotopic (piggy back) allotransplant,	12.37.03	Transplant, Heart
c1	Single lung transplant,	12.37.13	Transplant, Lung(s)
c1	Double lung transplant,	12.37.20	Transplant, Lung(s)
	Transplantation of heart and lungs,	12.32.13	Transplant, Heart and lung(s)
c1	Pericardiocentesis,	12.32.40	Pericardial drainage procedure
	Pericardiocentesis - open,	12.32.41	Pericardial drainage procedure
	Pericardial window creation,	12.32.46	Pericardial drainage procedure
	Pericardial biopsy,	12.32.53	Pericardial procedure, Other
	Pericardiectomy,	12.32.09	Pericardiectomy
c1	Procedure involving pericardium (DESCRIBE),	12.32.59	Pericardial procedure, Other
	Heart tumour resection,	12.32.10	Cardiac tumor resection
	Removal of cardiac vegetations,	12.32.20	Cardiac procedure, Other
	Traumatic injury of heart repair,	12.33.10	Cardiac procedure, Other
c1	Cardiac procedure (DESCRIBE),	12.32.21	Cardiac procedure, Other
c1	Peripheral vascular procedure (DESCRIBE),	12.33.51	Peripheral vascular procedure, Other
	Non-cardiothoracic / vascular procedure (DESCRIBE),	12.33.52	Miscellaneous procedure, Other

## Post-operative and cardiac support procedures

c1	Post-operative procedure,	12.32.00	Miscellaneous procedure, Other
c2	Delayed closure of sternum,	12.65.60	Delayed sternal closure
	Post-operative procedure to control bleeding,	12.32.18	Thoracic and / or mediastinal procedure, Other
c2	Plication of hemidiaphragm,	12.32.70	Diaphragm plication
c2	Thoracic duct occlusion,	12.32.28	Ligation, Thoracic duct
c2	Instigation of renal dialysis,	12.32.90	
c1	Cardiac support procedure,	12.87.01	Cardiac procedure, Other
c2	Intra-aortic balloon pump (IABP) insertion,	12.87.10	Intra-aortic balloon pump (IABP) insertion
	Intra-aortic balloon pump (IABP) insertion - transluminal,	12.87.02	Intra-aortic balloon pump (IABP) insertion
	Intra-aortic balloon pump (IABP) insertion - open,	12.87.04	Intra-aortic balloon pump (IABP) insertion
c2	Ventricular assist device implantation,	12.87.21	Right / Left heart assist device procedure
	RV assist device implantation,	12.87.22	Right / Left heart assist device procedure
	LV assist device implantation,	12.87.23	Right / Left heart assist device procedure
	Biventricular assist device implantation,	12.87.24	Right / Left heart assist device procedure
	Cardiac support using ECMO circuitry,	12.87.25	ECMO procedure
c1	Cardiomyoplasty procedure,	12.87.31	Cardiac procedure, Other
	Prosthetic heart implantation,	12.37.04	Right / Left heart assist device procedure
	Sternotomy wound drainage,	12.65.56	

## Thorax and lung procedures

c1	Debridement of chest wall incision,	12.65.45	Thoracic and / or mediastinal procedure, Other
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c1	Anterior chest wall (pectus) repair,	12.65.23	Pectus repair
	Pectus carinatum repair,	12.65.13	Pectus repair
c1	Pectus excavatum repair,	12.65.14	Pectus repair
	Sternal wire removal from previous sternotomy,	12.65.48	Thoracic and / or mediastinal procedure, Other
	Mediastinal procedure,	12.65.06	Mediastinal procedure
	Mediastinal exploration,	12.65.05	Mediastinal exploration
	Insertion of mediastinal tube drain,	12.32.83	Sternotomy wound drainage
c1	Pleural procedure (DESCRIBE),	12.65.89	Pleural procedure, Other
c2	Insertion of pleural tube drain,	12.32.80	Pleural drainage procedure
c2	Pleurodesis,	12.65.82	Pleural procedure, Other
	Parietal pleurectomy,	12.32.17	Pleural procedure, Other
	Open excision of pleural lesion,	12.65.72	Pleural procedure, Other
c1	Bronchoscopy,	12.64.00	Bronchoscopy
	Bronchoscopic removal of foreign body,	12.64.08	Bronchoscopy
c1	Tracheal procedure (DESCRIBE),	12.64.20	Tracheal procedure
c2	Tracheostomy creation,	12.64.21	Postoperative tracheostomy
c2	Tracheobronchial reconstruction procedure,	12.64.40	Tracheal procedure
c1	Lung procedure,	12.66.00	Lung procedure, Other
	Lung biopsy procedure,	12.32.06	Lung biopsy
	Lung decortication,	12.66.01	Decortication
	Lung mass excision,	12.66.02	Lung procedure, Other
	Lung lobectomy,	12.66.05	Lung procedure, Other
	Pneumonectomy,	12.66.06	Lung procedure, Other
	Lung sequestration repair,	12.66.07	Lung procedure, Other
c1	Thoracic / mediastinal procedure (DESCRIBE),	12.80.00	Thoracic and / or mediastinal procedure, Other

## Transcatheter procedures

c1	Transluminal catheter procedure,	12.45.00	Cardiac procedure, Other
c1	Diagnostic catheterisation procedure,	13.05.01	Cardiac procedure, Other
	Transluminal atrial trans-septal puncture,	12.45.01	Cardiac procedure, Other
c1	Transluminal retrieval of device/ foreign body,	12.45.04	Cardiac procedure, Other
c1	Balloon dilation of pulmonary vein or pathway,	12.00.24	Balloon dilation
c1	Stent placement in pulmonary vein or pathway,	12.00.25	Stent placement
c1	Balloon dilation of systemic vein or pathway,	12.00.43	Balloon dilation
c1	Stent placement in systemic vein or pathway,	12.00.44	Stent placement
c1	Balloon atrial septostomy by pull back (Rashkind),	12.01.41	ASD creation, Balloon septostomy (BAS) (Rashkind)
	Blade atrial septostomy,	12.01.44	ASD creation, Blade septostomy
c1	Transluminal fenestration of atrial septum / tunnel,	12.01.47	Cardiac procedure, Other
c1	ASD closure with transluminal prosthesis,	12.01.06	ASD repair, Device
	PFO closure with transluminal prosthesis,	12.01.07	ASD repair, Device
	RA septum / tunnel fenestration closure with transluminal device,	12.30.21	Device closure
c1	Balloon mitral valvotomy,	12.03.10	Balloon dilation
	Transluminal RV biopsy,	12.06.25	Cardiac procedure, Other
	Balloon dilation of RV outflow tract,	12.06.05	Balloon dilation
	Stent placement in RV outflow tract,	12.06.18	Stent placement
	Balloon dilation of LV outflow tract,	12.07.07	Balloon dilation
	VSD closure with transluminal prosthesis,	12.08.07	VSD repair, Device
	Transluminal fenestration of VSD patch,	12.08.20	Cardiac procedure, Other
	Balloon pulmonary valvotomy,	12.13.05	Balloon dilation
c1	Pulmonary valvar transluminal perforation & dilation,	12.13.09	Balloon dilation
	Balloon aortic valvotomy,	12.16.05	Balloon dilation
c1	Aortic valvar transluminal perforation & dilation,	12.16.25	Balloon dilation
c1	Balloon dilation of pulmonary trunk,	12.14.05	Balloon dilation
c1	Balloon dilation of RPA,	12.15.03	Balloon dilation
c1	Balloon dilation of LPA,	12.15.04	Balloon dilation
	Stent placement in RPA,	12.15.13	Stent placement
	Stent placement in LPA,	12.15.14	Stent placement
	Transluminal embolectomy from pulmonary tree,	12.15.49	Pulmonary embolectomy
	Aortopulmonary window closure with transcatheter device,	12.12.08	Device closure
	Balloon dilation of native aortic coarct/hypoplasia,	12.18.04	Balloon dilation
	Balloon dilation of aortic re-coarctation,	12.18.08	Balloon dilation
c1	Stent placement at site of aortic coarctation,	12.18.09	Stent placement
	Stent placement in arterial duct (PDA),	12.10.14	Stent placement
c1	Arterial duct (PDA) closure with transluminal prosthesis,	12.24.04	PDA closure, Device
	Arterial duct (PDA) closure with transluminal coil,	12.24.21	PDA closure, Device
	Arterial duct (PDA) closure with transluminal Amplatzer plug,	12.24.22	PDA closure, Device
c1	Transluminal procedure to MAPCA,	12.25.19	Thoracic and / or mediastinal procedure, Other
	Stent placement in MAPCA,	12.25.62	Stent placement
c1	Arteriovenous fistula embolisation,	12.25.02	Coil embolization
c1	Balloon dilation of systemic-PA shunt,	12.31.19	Balloon dilation
	Occlusion of systemic-PA shunt by transluminal embolus/device,	12.31.34	Device closure
	Balloon dilation of cardiac conduit,	12.36.14	Balloon dilation
	Stent placement in cardiac conduit,	12.36.23	Stent placement
	Pericardiocentesis - transcatheter,	12.32.43	Pericardial drainage procedure
	Stent redilation,	12.45.10	Balloon dilation

c1	Stent placement (DESCRIBE),	12.45.11				Stent placement
c1	Balloon dilation (DESCRIBE),	12.45.12				Balloon dilation
	Transluminal device closure (DESCRIBE),	12.45.13				Device closure
	Transluminal coil embolisation (DESCRIBE),	12.45.14				Coil embolization

## Procedure related complications

	No post-procedural complications,	15.90.03				None
c1	Post-procedural complication (DESCRIBE),	15.90.01	998.9	T81.8		Other postoperative complication
	Intraoperative death,	12.33.31				
	Death within 30 days of procedure,	12.33.33				
	Death unrelated to cardiac procedure,	12.33.34				
	Cardiac arrest during procedure,	15.00.01	997.1	T81.8		Arrhythmia
	Cardiac arrest following procedure,	15.00.02	997.1	I97.8		Postoperative cardiac arrest
c1	Post-procedural low cardiac output,	15.00.03	997.1	I97.1		Postoperative low cardiac output
	Post-procedural requirement for mechanical circulatory support,	15.00.09	997.1	I97.8		Postoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)
	Myocardial infarction following procedure,	15.00.05	997.1	410	I97.8	I21
c1	Post-procedural hypovolaemia,	15.00.30	998.0	T81.1		Other postoperative complication
c1	Arrhythmia following procedure,	15.60.02	997.1	I97.8	I49.9	Postoperative arrhythmia
c2	Post-procedural complete AV block,	11.06.17	997.1	I44.2		Arrhythmia, Heart block, Acquired
	Post-procedural complete AV block - requiring temporary pacemaker,	11.06.32	997.1	I44.2	Y83.8	Postoperative complete AV block requiring temporary pacemaker
	Post-procedural complete AV block - requiring permanent pacemaker,	11.06.33	997.1	I44.2	Y83.8	Postoperative complete AV block requiring permanent pacemaker
c1	Post-procedural haemorrhage,	15.02.00	998.1	T81.0		Other postoperative complication
	Post-procedural haemorrhage requiring reoperation,	15.02.65	998.1	T81.0		Bleeding requiring reoperation
c1	Post-procedural coagulopathy,	15.02.03	286.9	E878.8	D68.9	Y83.8
c1	Post-procedural haemolysis,	15.02.07	283.1	E878.8	D59.8	Y83.8
	General systemic complication of cardiac procedure,	15.80.00	998.9	T81.8		Other postoperative complication
	Multiple organ dysfunction syndrome (MODS),	15.80.16	998.9	T81.8		Other postoperative complication
	Post-procedural metabolic derangement,	15.80.01	277.9	E878.8	E88.9	Y83.8
	Post-procedural acidosis,	15.80.15	276.2	E878.8	E87.2	Y83.8
	Post-procedural septicaemia,	15.80.05	998.5	T81.4		Postoperative septicemia
	Capillary leak syndrome,	15.80.06	998.8	T81.8		Other postoperative complication

## Pulmonary and thoracic complications

c1	Respiratory complication after cardiac procedure,	15.80.20	997.3	J95.9		Other postoperative complication
	Post-procedural requirement for mechanical respiratory support > 7 days,	15.80.32	518.5	J95.3		Postoperative respiratory insufficiency requiring mechanical ventilatory support > 7 days
	Post-procedural requirement for reintubation,	15.80.33	518.5	J95.1		Postoperative respiratory insufficiency requiring reintubation
	Post-procedural pulmonary infection,	15.80.21	997.3	J95.8	J22	Pneumonia
	Post-procedural lung collapse,	15.80.31	518.0	E878.8	J98.1	Y83.8
	Residual pulmonary hypertension after relief of L to R shunt,	15.22.31	416.8	E878.8	I27.8	Y83.8
	Post-procedural pulmonary hypertensive crises,	15.80.22	518.5	E878.8	J95.8	Postoperative pulmonary hypertension crises (PA pressure > systemic pressure)
c1	Post-procedural pleural effusion,	15.80.50	511.9	E878.8	J90	Y83.8
	Post-procedural R pleural effusion,	15.80.51	511.9	E878.8	J90	Y83.8
	Post-procedural L pleural effusion,	15.80.52	511.9	E878.8	J90	Y83.8
	Pleural effusion requiring drainage,	15.80.61	511.9	J90		Pleural effusion requiring drainage
	Post-procedural chylothorax,	15.80.55	457.8	E878.8	J94.0	Y83.8
	Post-procedural haemothorax,	15.80.56	998.1	T81.0		Pleural effusion
c1	Post-procedural pneumothorax,	15.80.62	512	E878.8	J93.9	Y83.8
	Post-procedural requirement for tracheostomy,	15.80.86	997.3	J95.3		
	Post-procedural complication involving tracheo-bronchial tree,	15.80.70	519.1	997.3	J98.0	Y83.8
c1	Post-procedural phrenic nerve palsy,	15.80.90	519.4	J98.6		Phrenic nerve injury/paralyzed diaphragm
	Post-procedural recurrent laryngeal nerve palsy,	15.80.93	352.3	998.2	G52.2	T81.2
	Post-procedural Horner's syndrome,	15.80.94	337.9	998.2	G90.2	T81.2

## Renal, GI tract and CNS complications

c1	Post-procedural renal failure,	15.82.00	997.5		N99.0		Other postoperative complication
	Renal failure requiring temporary dialysis,	15.82.06	997.5		N99.0		Acute renal failure requiring temporary dialysis
	Renal failure requiring permanent dialysis,	15.82.07	997.5		N99.0		Acute renal failure requiring permanent dialysis
	Post-procedural gastrointestinal bleeding,	15.82.21	578.9	997.4	K92.2	Y83.8	Other postoperative complication
	Post-procedural inability to sustain gastric feeding,	15.82.23	997.4		K91.8		Other postoperative complication
	Post-procedural intestinal obstruction,	15.82.28	997.4		K91.3		Other postoperative complication
c1	Post-procedural peritonitis,	15.82.29	567.9	997.4	K65.0	Y83.8	Other postoperative complication
	Post-procedural protein losing enteropathy,	15.82.33	579.8	E878.8	K90.4	Y83.8	Other postoperative complication
c1	Post-procedural hepatic impairment,	15.82.43	997.4		K72.0	Y83.8	Other postoperative complication
	Post-procedural acute pancreatitis,	15.82.47	577.0	997.4	K85	Y83.8	Other postoperative complication
c1	Neurological complication after cardiac procedure,	15.82.50	997.0		G97.9		Other postoperative complication
c2	Post-procedural new onset seizures,	15.82.67	345.9	997.0	G40.9	Y83.8	Postoperative new onset seizures
	Post-procedural generalised seizures,	15.82.51	345.1	997.0	G40.3	Y83.8	Postoperative new onset seizures
c2	Post-procedural temporary neurological impairment,	15.82.53	997.0		G97.8		Other postoperative complication
c2	Post-procedural permanent neurological impairment,	15.82.57	997.0		G97.8		Postoperative neurological deficit persisting at discharge
	Post-procedural neurological impairment persisting at discharge,	15.82.65	997.0		G97.8		Postoperative neurological deficit persisting at discharge
	Post-procedural brain death,	15.82.64	997.0		G97.8		Other postoperative complication
	Post-procedural cerebral abscess,	15.82.66	324.0	997.0	G06.0	Y83.8	Other postoperative complication
	Brain abscess,	14.03.40	324.0		G06.0		
<b>Wound and pericardial complications</b>							
c1	Median sternotomy complication,	15.03.00	998.9		T81.9		Other postoperative complication
c2	Infection of median sternotomy wound,	15.03.03	998.5		T81.4		Other postoperative complication
	Keloid / hypertrophic scar of median sternotomy wound,	15.03.15	701.4		L91.0		Other postoperative complication
c1	Lateral thorocotomy complication,	15.03.30	998.9		T81.9		Other postoperative complication
c2	Infection of lateral thorocotomy wound,	15.03.32	998.5		T81.4		Other postoperative complication
	Wound dehiscence,	15.03.51	998.3		T81.3		Wound dehiscence
c1	Wound infection,	15.03.50	998.9		T81.9		Wound infection
	Mediastinitis,	15.03.52	519.2		J98.5		Mediastinitis
c1	Post-pericardiotomy syndrome,	10.08.11	429.4		I97.0		Pericardial effusion
	Pericardial effusion requiring drainage,	15.83.00	423.9		I31.3		Pericardial effusion requiring drainage
	Tamponade,	10.08.13	423.9		I31.9		Pericardial effusion requiring drainage
<b>Catheterisation and support device complications</b>							
c1	Cardiac catheterisation complication,	15.50.00	998.9	E879.0	T81.9	Y84.0	
	Intramyocardial injection of contrast medium,	15.50.01	E870.6		Y60.5		Other postoperative complication
	Lost pulse after cardiac catheterisation,	15.50.11	997.2	E879.0	T81.7	Y84.0	
	Post-procedural femoral arterial complication,	15.24.20	997.2		T81.7		Peripheral vascular, Other
	Failed attempt to site coil / device at catheterisation,	15.50.40	E874.5		T82.8		
c1	Intraaortic balloon pump (IABP) complication,	15.57.21	996.1		T82.9		
c1	ECMO circuit complication,	15.57.02	996.1		T82.9		
	Ventricular assist device complication,	15.57.03	996.1		T82.9		

## Appendix - EPCC to STS/EACTS boxed terms

Each STS/EACTS term requires two or more EPCC terms to be equivalent

### Diagnostic combined terms

Functionally univentricular heart, Abnormal atrial arrangement,	01.01.22 01.03.06	746.9 746.9	Q20.9 Q20.9	Single ventricle, Heterotaxia syndrome
Mitral atresia, Functionally univentricular heart,	06.02.01 01.01.22	746.8 746.9	Q23.2 Q20.9	Single ventricle, Mitral atresia
Tricuspid atresia, Functionally univentricular heart,	06.01.01 01.01.22	746.1 746.9	Q22.4 Q20.9	Single ventricle, Tricuspid atresia
AVSD with ventricular imbalance, Functionally univentricular heart,	06.07.26 01.01.22	745.6 746.9	Q21.2 Q20.9	Single ventricle, Unbalanced AV Canal
Complete transposition of great arteries (IVS), LV outflow tract obstruction,	01.01.02 07.09.01	745.1 746.8	Q20.3 Q24.8	TGA, IVS - LVOTO
Discordant VA connections (TGA), VSD,	01.05.01 07.10.00	745.1 745.4	Q20.3 Q21.0	TGA, VSD
Discordant VA connections (TGA), VSD, LV outflow tract obstruction,	01.05.01 07.10.00 07.09.01	745.1 745.4 746.8	Q20.3 Q21.0 Q24.8	TGA, VSD - LVOTO
Tricuspid regurgitation, Tricuspid stenosis,	06.01.91 06.01.92	746.8 746.1	Q22.8 Q22.4	Tricuspid regurgitation and tricuspid stenosis
Mitral regurgitation, Mitral stenosis,	06.02.91 06.02.92	746.6 746.5	Q23.3 Q23.2	Mitral regurgitation and stenosis
Pulmonary stenosis, Pulmonary regurgitation,	09.05.92 09.05.91	746.0 746.0	Q22.1 Q22.2	Pulmonary insufficiency and pulmonary stenosis
Supravalvar pulmonary trunk stenosis, Pulmonary trunk hypoplasia,	09.07.13 09.07.11	747.3 747.3	Q25.6 Q25.7	Pulmonary artery stenosis (Hypoplasia), Main (Trunk)
Aortic regurgitation, Aortic stenosis,	09.15.91 09.15.92	746.4 746.3	Q23.1 Q23.0	Aortic insufficiency + aortic stenosis
Aortic regurgitation, Mitral regurgitation,	09.15.91 06.02.91	746.4 746.6	Q23.1 Q23.3	Aortic insufficiency + mitral regurgitation
Aortic regurgitation, Mitral regurgitation, Mitral stenosis,	09.15.91 06.02.91 06.02.92	746.4 746.6 746.5	Q23.1 Q23.3 Q23.2	Aortic insufficiency + Mitral regurgitation and mitral stenosis
Aortic regurgitation, Mitral stenosis,	09.15.91 06.02.92	746.4 746.5	Q23.1 Q23.2	Aortic insufficiency + mitral stenosis
Aortic regurgitation, Aortic stenosis, Mitral regurgitation,	09.15.91 09.15.92 06.02.91	746.4 746.3 746.6	Q23.1 Q23.0 Q23.3	Aortic insufficiency and aortic stenosis + mitral regurgitation

Aortic regurgitation,	09.15.91	746.4	Q23.1
Aortic stenosis,	09.15.92	746.3	Q23.0
Mitral regurgitation,	06.02.91	746.6	Q23.3
Mitral stenosis,	06.02.92	746.5	Q23.2
Aortic regurgitation,	09.15.91	746.4	Q23.1
Aortic stenosis,	09.15.92	746.3	Q23.0
Mitral stenosis,	06.02.92	746.5	Q23.2
Aortic stenosis,	09.15.92	746.3	Q23.0
Mitral regurgitation,	06.02.91	746.6	Q23.3
Aortic stenosis,	09.15.92	746.3	Q23.0
Mitral regurgitation,	06.02.91	746.6	Q23.3
Mitral stenosis,	06.02.92	746.5	Q23.2
Aortic stenosis,	09.15.92	746.3	Q23.0
Mitral stenosis,	06.02.92	746.5	Q23.2
Aortic valvar abnormality,	09.15.00	746.9	Q23.9
Mitral valvar abnormality,	06.02.00	746.9	Q23.9
Pulmonary atresia + intact ventricular septum,	01.01.07	746.0	Q22.0
Coronary arterial abnormality,	09.46.00	746.8	Q24.5

Aortic insufficiency and aortic stenosis + Mitral regurgitation and mitral stenosis

Aortic insufficiency and aortic stenosis + mitral stenosis

Aortic stenosis and mitral regurgitation

Aortic stenosis + Mitral regurgitation and mitral stenosis

Aortic stenosis + mitral stenosis

Aortic valve, Other + Mitral valve, Other

Pulmonary atresia, IVS + Coronary artery anomalies

### Procedural combined terms

VSD closure,	12.08.01
ASD closure,	12.01.01
VSD closure,	12.08.01
Pulmonary trunk band removal (de-band),	12.14.03
Mitral valvar replacement,	12.03.11
Aortic valvar replacement,	12.16.21
Tetralogy of Fallot repair,	12.26.01
Transatrial approach,	12.08.11
Tetralogy of Fallot repair with transannular patch,	12.26.13
Trans-RV approach,	12.08.12
Tetralogy of Fallot repair without transannular patch,	12.26.20
Trans-RV approach,	12.08.12
Tetralogy of Fallot repair,	12.26.01
RV to pulmonary artery conduit construction,	12.36.01
Arterial switch procedure,	12.29.21
VSD closure,	12.08.01
Congenitally corrected TGA repair,	12.27.46
Arterial and atrial switch procedures (double switch),	12.29.25
Congenitally corrected TGA repair,	12.27.46
Arterial switch and Rastelli procedures,	12.29.26

VSD repair + ASD repair

VSD repair + PA debanding

Valve replacement, Mitral (MVR) + Valve replacement, Aortic (AVR)

TOF repair, No ventriculotomy

TOF repair, Ventriculotomy, Transannular patch

TOF repair, Ventriculotomy, Non-transannular patch

TOF repair, RV-PA conduit

Arterial switch operation (ASO) and VSD repair

Congenitally corrected TGA repair, Atrial Switch and ASO (Double switch)

Congenitally corrected TGA repair, Atrial Switch and Rastelli

Congenitally corrected TGA repair, VSD closure,	12.27.46 12.08.01
Congenitally corrected TGA repair, VSD closure, LV to pulmonary artery conduit construction,	12.27.46 12.08.01 12.36.02
Total cavopulmonary conn (TCPC) with lateral atrial tunnel, Fenestration of Fontan type connection,	12.30.51 12.30.27
Total cavopulmonary conn (TCPC) with lateral atrial tunnel, Fontan-type connection without fenestration,	12.30.51 12.30.28
Total cavopulmonary conn (TCPC) using extracardiac IVC-PA conduit, Fenestration of Fontan type connection,	12.30.54 12.30.27
Total cavopulmonary conn (TCPC) using extracardiac IVC-PA conduit, Fontan-type connection without fenestration,	12.30.54 12.30.28
Coronary arterial bypass graft (CABG) procedure, Aortic valvar replacement,	12.23.08 12.16.21
Coronary arterial bypass graft (CABG) procedure, Aortic valvar replacement, Mitral valvar replacement,	12.23.08 12.16.21 12.03.11
Coronary arterial bypass graft (CABG) procedure, Aortic valvar replacement, Mitral leaflet (valvoplasty) procedure,	12.23.08 12.16.21 12.03.03
Coronary arterial bypass graft (CABG) procedure, Mitral valvar replacement,	12.23.08 12.03.11
Coronary arterial bypass graft (CABG) procedure, Mitral leaflet (valvoplasty) procedure,	12.23.08 12.03.03
Interrupted aortic arch repair, Aortopulmonary window closure,	12.21.00 12.12.01
Mustard procedure (atrial inversion), Pulmonary trunk band removal (de-band),	12.29.02 12.14.03
Mustard procedure (atrial inversion), VSD closure,	12.29.02 12.08.01
Pulmonary trunk band (PA band), Systemic-to-pulmonary arterial shunt procedure,	12.14.02 12.31.30
Rastelli procedure: LV to Ao via VSD & RV to pulm trunk conduit, VSD enlargement/ creation,	12.29.11 12.08.06
REV procedure: LV to Ao via VSD & direct RV-PA anast (Lecompte), VSD enlargement/ creation,	12.27.45 12.08.06
Senning procedure (atrial inversion), Pulmonary trunk band removal (de-band),	12.29.01 12.14.03
Senning procedure (atrial inversion), VSD closure,	12.29.01 12.08.01

Congenitally corrected TGA repair, VSD closure

Congenitally corrected TGA repair, VSD closure and LV to PA conduit

Fontan, TCPC, Lateral tunnel, Fenestrated

Fontan, TCPC, Lateral tunnel, Non-fenestrated

Fontan, TCPC, External conduit, Fenestrated

Fontan, TCPC, External conduit, Non-fenestrated

Coronary artery bypass + Valve replacement, Aortic (AVR)

Coronary artery bypass + Valve replacement, Aortic (AVR) + Valve replacement, Mitral (MVR)

Coronary artery bypass + Valve replacement, Aortic (AVR) + Valvuloplasty, Mitral

Coronary artery bypass + Valve replacement, Mitral (MVR)

Coronary artery bypass + Valvuloplasty, Mitral

Interrupted aortic arch repair + AP window repair

Mustard + PA debanding

Mustard + VSD repair

PA Banding (PAB) + Shunt, Systemic to pulmonary

Rastelli + VSD creation/enlargement

REV + VSD creation/enlargement

Senning + PA debanding

Senning + VSD repair

